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ABSTRACT

Mastery motivation is an inherent force that stimulates exploration of the environment and attempts at mastering moderately challenging tasks. It is important to develop good measures of this motive because there is evidence that indicators of task orientation are predictors of later school success, and no doubt mastery motivation is a precursor of achievement motivation. This overview introduces four papers related to three independent research projects, with ethnically and geographically diverse samples: one with toddlers, one with preschools, and one with young elementary school children. Each study used an age-appropriate version of the revised Dimensions of Mastery Questionnaire, mastery tasks, and other project-related measures. This overview concludes that the results of the studies provide support for the use of these instruments to assess an important aspect of early childhood functioning, but also indicate the need for caution in use with certain ethnic groups and with young children. Five advances in mastery motivation research are then identified: (1) identification of the expressive aspect of mastery motivation; (2) manifestation of mastery motivation in multiple domains; (3) separation of motivation from competence in the assessment of mastery motivation; (4) refinement of the paper-and-pencil measure of mastery motivation; and (5) expansion of the age groups studied. (KB)

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ED 422 106

New Measures of Mastery Motivation for Infancy through Elementary School

George A. Morgan, Organizer

Overview

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PS 026 811

Symposium presented at the Fourth National Head Start Research Conference, Washington, D.C., July 9-12, 1998.

Abstract

New Measures of Mastery Motivation For Infancy Through Elementary School

George A. Morgan and Nancy Busch-Rossnagel, Co-chairs

Mastery motivation is an inherent force that stimulates exploration of the environment and attempts to master moderately challenging tasks. It is important to develop good measures of this motive because there is evidence that indicators of task orientation are predictors of later school success, and no doubt mastery motivation is a precursor of achievement motivation. The papers in this symposium are three independent projects, with ethnically and geographically diverse samples, one with toddlers, one with preschoolers, and one with young elementary school children. Each used an age appropriate version of the revised Dimensions of Mastery Questionnaire (DMQ), mastery tasks, and other measures appropriate to the specific project. The results of these studies provide support for the use of these instruments to assess an important aspect of early childhood functioning, but they also indicate the need for caution in use with certain ethnic groups and young children themselves.

Symposium conducted at the Head Start Fourth National Research Conference
"Children and Families in an Era of Rapid Change"
Washington, DC, July 9-12, 1998

Overview

The papers you will hear in the symposium today focus on the concept of mastery motivation. (Overhead 1) Mastery motivation is an inherent force that stimulates exploration of the environment and mastery of moderately challenging skills. The impetus to achieve and improve one's skills in the absence of any physical reward, thus the mastery of the environment seems to be the reward in itself (Busch-Rossnagel, 1997).

Why do the researchers here today think that mastery motivation is a concept worth investigating? We believe that such work will help us understand children's success in school. Individuals succeed in our society not just because of their ability, but also because of their achievement motivation. No doubt mastery motivation is a precursor of achievement motivation, and mastery motivation in infancy has been found to be more predictive of later competence than developmental tests (Messer, McCarthy, McQuiston, MacTurk, Yarrow, & Vietze, 1986). Thus, if we can influence levels of mastery motivation, we may be able to foster children's success in school.

Most work in mastery motivation refers to the classic work by Robert White (1959) as the source of the original propositions. White proposed that drive reduction theory could not explain some observations of behavior that apparently occurred in a satiated state – in the absence of a drive. White suggested that this propensity to act on the environment is a primitive biological endowment, which results in competence motivation, the impetus toward mastering tasks and improving skills.

The theorizing of White and others would have remained at the level of speculation for the infancy and early childhood periods were it not for the empirical applications of Leon Yarrow and his group at NIH in the 1970's. In particular, this group

can be credited with tackling the thorny issue of measuring mastery motivation. Their approach to measuring mastery motivation involved observations of children working by themselves to explore and use a toy, and these observations form the basis for the observational measures of mastery motivation used in the studies reported here today. Specifically, the method used to measure motivation was to quantify the child's persistence in working on a task.

Development of Mastery Motivation

The empirical results of studies with this approach suggested that there are developmental changes in the expression of mastery motivation (Barrett & Morgan, 1995). (Overhead 2) The expression of mastery motivation in young infants, from birth to 8/9 months is seen in their preference for controlling events, such as the emergence of a jack-in-the box (Barrett, Morgan, & Maslin-Cole, 1993). During this early period, mastery motivation is often manifested as exploratory behavior and a preference for novelty, but during the later half of the first year, the expression of mastery motivation changes from exploration to goal-directed behavior or problem solving. By the later half of the second year, toddlers are able to complete tasks that have several parts (such as a shape sorter). By the middle of the third year, about 30 months, toddlers are able to master tasks that require a set order of steps for completion, such as a toy CD player—no sound comes out if the CD is not put in the player! Furthermore, socialization leads to the child's acquisition of standards; with such standards, the expression of mastery motivation is also related to a preference for challenging or moderately difficult tasks.

The studies to be reported on in this symposium build on this empirical, developmental approach to mastery motivation. However, in recent years, the construct

of mastery motivation and associated measurement efforts have expanded in several ways, and each of the studies have been included in this symposium because they exemplify this expansion. Let us highlight five recent changes as an introduction to the empirical symposium papers.

Identification of the Expressive Aspect

Traditional work on mastery motivation focused primarily on the instrumental aspect, namely persistence in the problem solving effort or in the mastery of the tasks. (Overhead 3) In addition to this instrumental aspect of mastery motivation, there is also an expressive aspect, primarily mastery pleasure. Mastery pleasure is assessed through expression of positive affect during task-directed behavior and/or immediately after a solution. This aspect has been tied to work in socioemotional development, such as the expressions of pride and shame and the development of standards (Barrett & Morgan, 1995). The result of this expansion is that we now posit that mastery motivation is manifested in two ways, one instrumental, indexed by persistence, and the second expressive, usually indexed by positive affect.

Manifestation in Multiple Domains

Related to the work on the instrumental and expressive aspects of mastery motivation is the expansion of the concepts and the measures to include multiple domains. (Overhead 3 continues.) The traditional domain includes object-oriented tasks, such as learning how a toy works. Several researchers, especially Ted Wachs and Rob MacTurk have argued that mastery motivation should include not only actions with toys or inanimate objects, but also actions directed toward people. What we term social mastery motivation can be indexed by the child's attempts to initiate, maintain and

influence interactions with others. A third domain for mastery motivation, posited by George Morgan, is that of gross motor or athletic persistence. Susan Harter also identifies this domain in her work on self-perceived competence.

Separation of Motivation from Competence

A third area of expansion involves the separation of motivation from competence in the measurement of mastery motivation. (Overhead 4) Morgan and his colleagues (1992) have developed an individualized method that allows the identification of moderately difficult tasks in the object-oriented domain. The use of a task that is moderately difficult for a particular child controls variability due to competence. McCall (1995) has emphasized the importance of controlling the confound between motivation and competence in performance and notes that this individualized method is a significant advancement in this area. This separation of motivation from competence is particularly important in studies of mastery motivation in children with special needs or in low-income populations such as the toddler and preschool samples used in the first two studies.

Refinement of Questionnaire Measure

A fourth area of recent work is the refinement of a paper and pencil measure of mastery motivation. (Overhead 4 continues.) The Dimensions of Mastery Questionnaire (DMQ, Morgan et al. 1993) was originally designed as a parent or teacher report to provide a briefer and less expensive assessment of a child's functioning than that gained from observational tasks. The DMQ has undergone two significant changes in the last few years. In 1995, we revised the DMQ using the method of decentering, to create equivalent Spanish and English versions. This version, DMQ 16, was used in the toddler

and preschool studies in today's symposium. More recently, that version was revised as DMQ 17. This most recent revision allowed us to address some of the issues that may be problematic with respondents with lower reading levels. In particular, several of the reversed items on the DMQ 16 did not load on their proposed factors. In the revision to DMQ 17, we eliminated some reverse-worded items, so that there is only one reversed item for each scale, along with a similar positively worded item. Our intention is to develop a scoring template to identify respondents who are inconsistent in their coding of the reversed items, either because they have trouble understanding them or because they are reading too fast and not paying attention. The reading level of the DMQ 17 was also simplified by shortening sentences and using words that are common in textbooks by the third grade. These changes should help to make the DMQ 17 more appropriate for parents who do not read well and for elementary school children to rate themselves.

Expansion of Age Groups Studied

The notion of studying mastery motivation in elementary school children is an indication of the final advance in the research on mastery motivation; namely, the expansion in the age groups studied, starting with infants as young as 6 months and continuing to 12 years. (Overhead 4 continues.) As a first step, self-report versions of the DMQ 17 were created for school age children, along with mastery tasks appropriate to children during the elementary school years. The generation of psychometrically sound measures for new age groups provides a foundation for future longitudinal studies of the developmental changes in mastery motivation. In addition, the hypothesized ties between mastery motivation, achievement motivation, self-perceived competence, and academic

achievement can be examined with these new measures, as we will see in the last paper in the symposium today.

In sum, the last few years have seen five advances in mastery motivation research: (1) identification of the expressive aspect of mastery motivation, (2) manifestation of mastery motivation in multiple domains, (3) separation of motivation from competence in the assessment of mastery motivation, (4) refinement of the paper and pencil measure of mastery motivation, and (5) expansion of the age groups studied. The empirical studies in this symposium are illustrations of these advances.

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Mastery Motivation

"The impetus to achieve and improve one's skills in the absence of any physical reward."

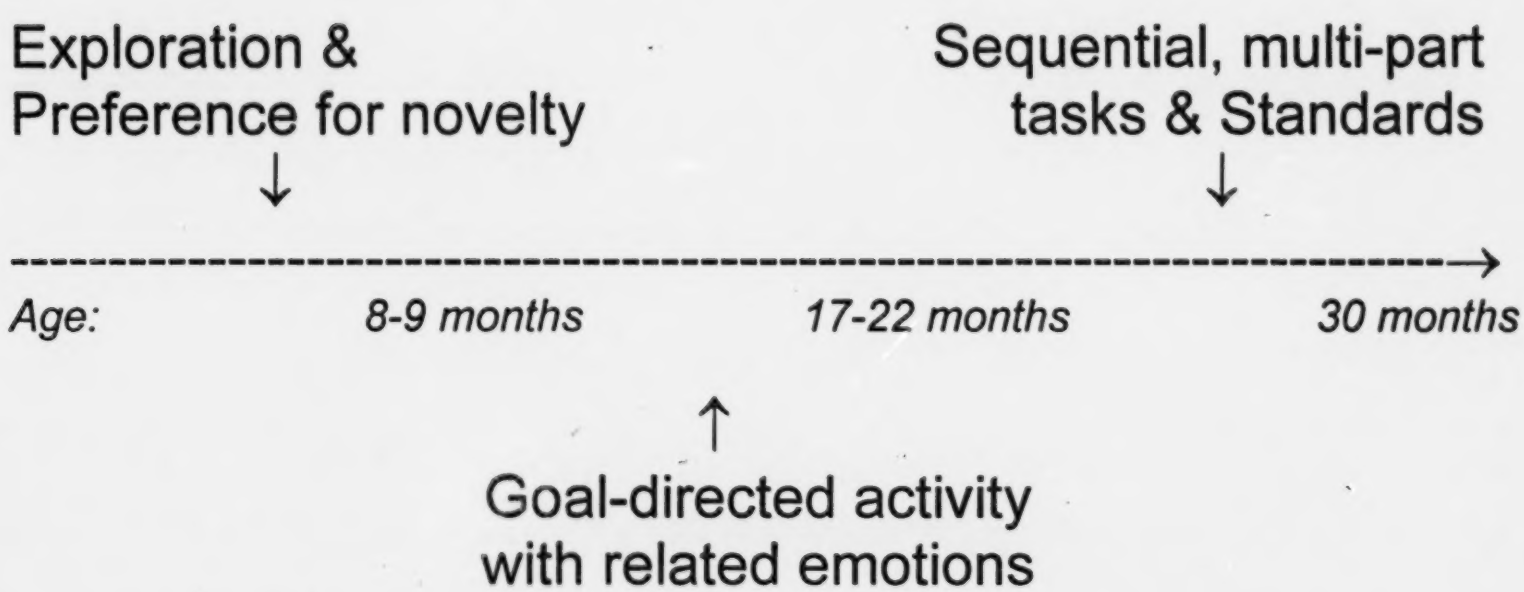
(Busch-Rossnagel, 1997)

"The disposition to persistently attempt to attain a goal in the face of moderate uncertainty about whether the goal can be achieved."

"Stick-to-itiveness"

(McCall, 1995)

Developmental Changes in Mastery Motivation



Aspects & Domains of Mastery Motivation

	Aspect	
Domains	Instrumental	Expressive
Object-oriented		
Social		
Gross-motor		

Five Advances in Mastery Motivation

1. Identification of the expressive aspect.
2. Manifestation in multiple domains.
3. Separation of motivation from competence.
4. Refinement of questionnaire measure.
5. Expansion of age groups studied.